AIR NAVIGATION PLAN

EUROPEAN REGION

PART X — COM

PROVISIONAL EDITION

This constitutes part of the Provisional Twenty-Third Edition of the Air Navigation Plan Publication for the European Region.

It is subject to endorsement by the EUR/7 RAN Meeting (1985) and approval by Council.

Completion of that action will be notified in due course and this sheet may then be removed.

AIR NAVIGATION PLAN

EUROPEAN REGION

PART X

AERONAUTICAL TELECOMMUNICATIONS (COM)

RECORD OF AMENDMENTS AND CORRIGENDA

AIR NAVIGATION PLAN — EUR

PART X — COM

Amendment		Entered by	Date
No.	Date		

Corrigendum		Entered by	Date
No.	Date		

PART X — COM
AERONAUTICAL TELECOMMUNICATIONS

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EXPLANATION OF TERMS

Statement of Basic Operational Requirements, Planning Criteria and Methods of Application (RCM)

The RCM defines the objectives which the air navigation system of the EUR Region is intended to meet and, in broad terms, the way in which it should be planned. It also serves as a means to ensure the operation of that system in a coherent and uniform manner and to provide guidance on its future development. For the RCM to be as useful as possible, it must clearly indicate the relationship between relevant world-wide ICAO provisions and specific material applicable to the EUR Region. Where relevant, therefore, each paragraph of the Statement is related to the appropriate governing world-wide provisions, whenever such provisions exist.

Basic Operational Requirement (OR)

A need upon which ICAO agreement has been reached between the users of a given service and/or facility and its provider that it constitute a requirement which has to be met in order for the system to perform in a satisfactory manner.

Planning Criteria (PC)

The sum of principles which need to be taken into account in the planning and implementation of the air navigation system, or of its parts in order to facilitate its uniform operation in the most efficient, economic and practical manner.

Method of Application (MA)

A method of operation of specific parts of the air navigation system which, by practical application has proved to be an efficient and economic manner of operation and which, when applied on a wider scale, could ensure optimum uniformity in the operation of the air navigation system in a given area.

Note.— The Assumed Operating Parameters are contained in Part I — PRM and information on General Planning Aspects is reflected in Part II — GEN.

INTRODUCTION TO PART X — COM

1. This Part of the EUR Air Navigation Plan Publication contains:

a) RCM material on Aeronautical Telecommunications;

b) Requirements for telecommunications facilities; and

c) Information on individual frequency assignments for air-ground communications and radio navigation aids.

2. The RCM material is referenced to relevant basic ICAO documents, wherever a relationship exists. The Aeronautical Fixed Service requirements are reflected in chart form (Charts COM-1 and COM-1A). The listings of individual frequency assignments for air-ground communications and radio navigation aids are contained in Tables COM-1 to COM-5, which constitute Supplements to this Part of the EUR Air Navigation Plan Publication.

3. *Amendments to Part X — COM*

Amendment	Date	Source	Subject	State letter reference

Note.— This presentation is intended to allow the tracing of developments concerning this part of the Regional Plan and will be updated as Amendments are issued.

PART X — COM

AERONAUTICAL TELECOMMUNICATIONS

Relevant Basic ICAO Documents: Annex 3 — Meteorological Service for International Air Navigation
Annex 10 — Aeronautical Telecommunications
Annex 11 — Air Traffic Services
Annex 12 — Search and Rescue
Annex 15 — Aeronautical Information Services
Doc 8259 — Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunication Network

1. GENERAL

PC 1.1 The telecommunication facilities and services should meet the requirements of those other components of the air navigation system which they are intended to serve.

PC 1.2 In planning for those other components, due account should be taken of economy and efficiency in order to ensure that the requirements for the provision of telecommunication facilities and services can be kept to a minimum.

PC 1.3 Telecommunication facilities and services should fulfil multiple functions whenever this is feasible.

2. AERONAUTICAL FIXED SERVICE (AFS)

Basic requirements

OR 2.1 The aeronautical fixed service (AFS) should satisfy the point-to-point communication requirements of ATS, ATFM, AIS, MET, SAR including specific requirements in terms of system reliability, message integrity and transit times, with respect to printed as well as digital data and speech communications. If need be, it should, following agreement between individual States and aircraft operators, satisfy the requirements for airline operational control.

[Annex 3, 11.1; Annex 11, 6.2; Annex 12, 2.4; Annex 15, 8; Annex 10, Volume II, 4.4.1.1]

OR 2.2 To meet the data communication requirements, a single common carrier high-grade aeronautical network should be provided, based on the concept of the Common ICAO Data Interchange Network (CIDIN).

Note.— The initial configuration of an improved network based on the CIDIN concept was developed by the Limited EUR/NAM/NAT COM (AFS) RAN Meeting, 1979 (cf. Doc 9263, Recommendations 2/3 and 2/5). Planning principles were developed by the COM/MET Divisional Meeting, 1982 (cf. Doc 9367, Recommendation 1.1/1).

[Annex 10, Volume I, Part I, 4.12, and Attachment G to Part I]

MA 2.3 The use of public data networks (PDN) to meet data communication requirements should be limited to the following cases:

a) to overcome temporary disruption of dedicated circuits;

b) when the traffic does not justify the use of dedicated circuits; and

c) where PDN performance, availability and cost effectiveness are demonstrably equivalent or superior.

Existing network

OR 2.4 Pending future developments of the EUR AFS, the current requirements should be met by the use of:

a) the Aeronautical Fixed Telecommunication Network (AFTN) circuits and centres;

b) the Meteorological Operational Telecommunications Network, Europe (MOTNE)* circuits and centres;

c) the ATS direct speech circuits;

d) the ATS computer-to-computer data circuits.

MA 2.5 In cases where LTT circuits are not available and RTT circuits have to be used on the AFTN on a temporary basis, the selection and use of frequencies should conform to the principles contained in the *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunication Network.*

[Doc 8259, 1.3.2.8]

OR 2.6 All possible arrangements should be made to ensure that, in case of breakdown of a communications centre, at least high-priority traffic continues to be handled by means of standby facilities.

OR 2.7 Emergency procedures should be developed to ensure that, in case of a centre breakdown, all the parties concerned are promptly informed of the prevailing situation.

MA 2.8 In planning the AFTN element of the AFS network, proper account should be taken of the guidance material in the *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunication Network.*

[Doc 8259]

PC 2.9 AFS planning should permit flexibility in detailed development and implementation.

PC 2.10 Concurrently with the phased implementation of the improved AFTN, the existing dedicated networks and circuits should gradually be withdrawn.

Improved network

PC 2.11 The improved AFTN based on CIDIN should have sufficient capacity to meet the basic requirements for data communications for the services mentioned in 2.1 above, including data bank access as necessary.

PC 2.12 The improved network should be capable of carrying the following main types of traffic:

a) all ATS telegraph and data traffic, including real-time data exchanges between ATS computers;

b) ATFM traffic;

c) AIS traffic (e.g. Class I NOTAM, pre-flight information bulletins);

d) OPMET messages, bulletins and area forecasts, including upper air forecasts for grid points in digital form;

e) SAR traffic; and

f) possibly, point-to-point ground communications associated with air-ground data links.

Note.— A requirement for the improved network to carry speech and digital facsimile may have to be considered in the long term as and when this becomes practicable and cost effective.

PC 2.13 The improved network should normally be composed of dedicated circuits (leased or privately owned) commensurate with the operational requirement for reliability and transmission speed in the area for which each circuit is planned.

MA 2.14 Where particular point-to-point communication requirements cannot be met within the improved network, separate AFS circuits should be provided.

PC 2.15 The plan for the implementation of the improved network should take into account the need for cost-effective evolution in terms of both circuit and centre capacity and allow for a progressive transition from manual to automatic handling of communications traffic.

PC 2.16 In order not to limit codes and message formats available to the users and to simplify data bank utilization, code and byte independent (CBI) procedures should be provided at all switching centres in the improved network.

PC 2.17 CIDIN switching centres should, in addition, be capable of effecting format and code conversion to enable messages to be exchanged with other networks.

[Annex 10, Volume I, Part I, 4.12.3.1]

PC 2.18 In the long term, the network should provide for interregional connexions between selected CIDIN switching centres. This concept may also have to be applied in the short term to interconnect CIDIN switching centres in the EUR Region to designated AFTN centres in other regions, whenever this is necessary to avoid unacceptable delays to interregional traffic exchanged over existing multiple-relay AFTN circuits.

* For provisions regarding the MOTNE System, see Attachment E.

PC 2.19 In planning the improved network, provisions should be made, where required, for an interface with other international networks.

Specific ATS requirements

PC 2.20 Where ATS speech and telegraph communication links between any two points are provided, the engineering arrangements should be such as to avoid the simultaneous loss of both circuits.

OR 2.21 Special provisions should be made to ensure a rapid restoration of ATS speech circuits in case of outage.

OR 2.22 The direct access speech capability provided between ATS units should permit contact to be established as rapidly as necessary commensurate with the functions of the units concerned.

[Annex 11, 6.2]

OR 2.23 Data circuits between ATS computers, using the improved AFTN when available, to permit exchanges of flight data and related ATS information, should provide for both high capacity and message integrity.

Specific MET requirements

OR 2.24 The present distribution of OPMET data on the omnibus MOTNE system should be replaced by a predetermined selective AFTN distribution when the improved network is implemented. This should be supplemented by the use of data banks.

OR 2.25 In the transmission of operational meteorological information on the improved network, the specified transit times should be met on at least 95 per cent of occasions (cf. Part VIII — MET, 16.12 and 16.13).

PC 2.26 In planning the improved network, account should be taken of changes in the current pattern of distribution of meteorological information resulting from the increasing number of long-range direct flights and the trend towards centralized flight planning.

Note.— Specific requirements concerning ATFM and AIS have still to be developed.

3. AERONAUTICAL MOBILE SERVICE (AMS)

PC 3.1 Air ground communication facilities should meet rapidly and reliably the agreed communication requirements of the air traffic services, as well as all other types of communications which are acceptable on the AMS to the extent that the latter types of communications can be accommodated. These facilities should, whenever possible, employ VHF and, in the case of ATS communications, provide for direct pilot-controller communications particularly in TMAs and on ATS routes with high density of air traffic. Whenever required, use of suitable techniques on VHF or higher frequencies should be made.

Note.— The VHF band currently available for AMS use is 118-136 MHz. However, new or retrofitted communications equipment should be capable of operating up to and including the extended AMS band-edge of 137 MHz to cater for the expected availability and use, as from 1990, of this additional MHz.

[Annex 11, 6.1]

PC 3.2 Operation on HF should only be employed when use of VHF is not feasible. When HF is used, the single side-band technique should be employed.

[Annex 10, Volume I, Part I, 4.11]

MA 3.3 SELCAL should be provided on general purpose (GP) communication channels using HF or VHF.

PC 3.4 Aerodromes having a significant volume of IGA traffic should be provided with appropriate air-ground communication channels.

4. AERONAUTICAL RADIO NAVIGATION SERVICE

PC 4.1 Radio navigation aids should meet, in a reliable manner, the agreed air navigation requirements as contained in Part III — AOP and Part IV — ARN.

MA 4.2 States should publish information relating to the designated operational coverage of individual radio navigation aids in the appropriate parts of their Aeronautical Information Publications and users should be requested not to use aids beyond the cover specified in such publications.

MA 4.3 States should take necessary measures to ensure the continued reliable operation of radio navigation aids once these have been accepted for operational use (see 8 below).

5. FREQUENCY ASSIGNMENT PLANNING — GENERAL

PC 5.1 The frequency assignment planning should be in accordance with Annex 10, supplemented, as necessary,

by regional recommendations and technical criteria developed for this purpose.

6. FREQUENCY ASSIGNMENT PLANNING FOR AMS

PC 6.1 Frequencies should be assigned to all VHF AMS facilities, taking into account:

a) agreed geographical separation criteria based on 25 kHz interleaving between channels;

b) the need for maximum economy in frequency demands and in radio spectrum utilization; and

c) a deployment of frequencies which ensures that international services are planned to be free of interference from other services using the same band.

PC 6.2 The priority order to be followed in the assignment of frequencies to service is:

a) ATS channels serving international services (ACC, APP, TWR, FIS);

b) ATS channels serving national purposes;

c) channels serving international VOLMET services;

d) channels serving ATIS and PAR;

e) national channels used for other than ATS purposes.

PC 6.3 The criteria used for frequency assignment planning for VHF AMS facilities serving international requirements should, to the extent practicable, also be used to satisfy the need of national VHF AMS facilities (see 9.1 in Part II — GEN).

MA 6.4 In order to avoid restrictions on frequency assignment possibilities due to adjacent channel interference on VHF, those States which do not yet have a requirement to implement 25 kHz channel spacing in the VHF aeronautical mobile service, but which are located within air-to-air interference range of another State which has to employ that channel spacing, should provide their ground stations with equipment which, even if it operates on channels spaced by 50 or 100 kHz, nevertheless has frequency stability and selectivity appropriate to 25 kHz channel spacing operation. In addition, States should ensure that any aircraft flying over or within air-to-air interference range of States where 25 kHz channel spacing is employed in the VHF aeronautical mobile service is fitted with airborne equipment having frequency stability and selectivity appropriate to 25 kHz channel spacing operation.

MA 6.5 A number of principles and criteria applicable to the practical conduct of frequency assignment are given in Attachment A.

PC 6.6 Assignment of frequencies to satisfy airline operational control communication requirements should be made in accordance with the criteria and method shown in Attachment B.

PC 6.7 The adjacent channel separation for frequencies assigned to any service in the band 118-136 MHz should be 10 NM air-to-air.

PC 6.8 Special provisions should be made, by agreement between the States concerned, for the sharing and the application of reduced protection of non-ATC frequencies in the national sub-bands, so as to obtain a more economical use of the available frequency spectrum consistent with operational requirements.

OR 6.9 It should be ensured that no air/ground frequency is utilized outside its designated operational coverage.

OR 6.10 It should be ensured that the stated operational requirements for coverage of a given frequency can be met for the transmission sites concerned, taking into account terrain configuration.

MA 6.11 To ensure adequate operational flexibility, the designated operational coverage of an air/ground channel promulgated for specific ACC sectors should take into account any intended combination of control sectors, notably during slack hours.

7. FREQUENCY ASSIGNMENT PLANNING FOR RADIO NAVIGATION AIDS

PC 7.1 Frequencies should be assigned to all radio navigation facilities taking into account:

a) agreed geographical separation criteria based on assignments of 50 kHz-spaced frequencies to ILS localizer and VOR, and X and Y channels to DME;

b) the need for maximum economy in frequency demands and in radio spectrum utilization; and

c) a deployment of frequencies which ensures that international services are planned to be free of interference from other services using the same band.

PC 7.2 States having VORs located within interference range of a VOR in another State which is planned to operate on an adjacent 50 kHz channel should ensure that the level of harmonics of the 10 kHz sub-carrier of the facilities concerned meets Annex 10 specifications.

PC 7.3 Principles and criteria applicable to the practical conduct of frequency assignment to VHF/UHF aids are given in Attachment C.

[Annex 10, Volume I, Attachment C to Part I, 2.6.6 to 3.4.5]

PC 7.4 Principles and criteria applicable to the practical conduct of frequency assignment to LF/MF aids are given in Attachment D.

[Annex 10, Volume I, Attachment B to Part II, 3]

PC 7.5 The principles used for frequency assignment planning for radio navigation aids serving international requirements should, to the extent possible, also be used to satisfy the needs for national radio aids to navigation (see 9.1 in Part II — GEN).

MA 7.6 All possible measures should be taken, particularly in cases where frequency congestion exists, to accelerate the replacement of those existing VOR equipments that are not in conformity with Annex 10 specifications for the 10 kHz sub-carrier harmonics level, in order to facilitate the implementation of new required 50 kHz-spaced VORs.

[Annex 10, Volume I, Part I, 3.3.5.7]

8. FLIGHT TESTING AND MAINTENANCE OF RADIO NAVIGATION AIDS

(Attachment D to Part III — AOP refers)

MA 8.1 Operational and technical ground services should ensure that flight testing and routine maintenance of those elements of the radio navigation service which affect the safety and regularity of flight operations are, to the extent possible, conducted outside those periods when air traffic depends more than usual on the aids concerned.

MA 8.2 To avoid duplication of effort and material and to keep costs within acceptable limits, co-operative arrangements regarding flight testing of radio navigation aids should, whenever possible, be concluded between interested States.

MA 8.3 The frequency of flight testing should as far as possible be reduced by the use of suitable ground monitoring techniques.

9. CO-ORDINATION WITH THE AERONAUTICAL INFORMATION SERVICE

OR 9.1 Before introducing changes to the air navigation system, due account should be taken of the time needed by AIS for the preparation, production and issue of relevant material for promulgation. Timely and close co-ordination between the services concerned is therefore required.

Note.— Paragraph 3 of the RCM on AIS contained in Part VII — AIS refers.

ATTACHMENT A to PART X — COM

PLANNING CRITERIA

PRINCIPLES AND CRITERIA REGARDING FREQUENCY ASSIGNMENT PLANNING FOR VHF AMS FACILITIES IN THE EUR REGION
(Paragraph 6.5 of the RCM on COM refers)

1. SERVICES REQUIRING AMS VHF ASSIGNMENTS

1.1 AERODROME

TWR	:	Aerodrome control service
AS	:	Aerodrome surface communications
PR	:	Precision approach radar
AFIS	:	Aerodrome flight information service

1.2 APPROACH

APP/L	:	Low level approach control service
APP/I	:	Intermediate level approach control service
APP/H	:	High level approach control service
APP/RL	:	Low level surveillance radar service
APP/RI	:	Intermediate level surveillance radar service
APP/RH	:	High level surveillance radar service
ATIS	:	Automatic terminal information service

1.3 EN ROUTE

F	:	Flight information service
ACC/L	:	Area control service (Lower airspace)
ACC/U	:	Area control service (Upper airspace)
ACC/RL	:	Surveillance radar service (Lower airspace)
ACC/RU	:	Surveillance radar service (Upper airspace)
GP	:	General purpose en-route communications channel

1.4 OTHER FUNCTIONS

A/G	:	Air-ground communication channel (*)
E	:	Emergency
OPC	:	Operational control
SAR	:	Search and Rescue
VOLMET	:	Meteorological broadcast for aircraft in flight
NLA	:	National light aviation (*)
RGA	:	Regional guard (ATS) (*)
RGL	:	Regional glider operations (*)
RLA	:	Regional light aviation (*)
RPR	:	Regional precision radar (*)
INF	:	National light aviation information (*)

A/A : Air-Air (*)
GLD : Gliders (*)
EQT : Equipment testing (*)
HEL : Helicopters (*)
FLT : Flight test (*)
RFT : Research and Test (*)

(*) Not an ICAO assignment

2. ALLOTMENT TABLE

2.1 The allotment table is based on Annex 10, Volume I, Part II, 4.1.1 also incorporating regional agreement on specific uses of individual sub-bands.

Frequency band (MHz)	World-wide utilization	EUR Application	Remarks
118.000-121.400	Int/Nat.	TWR/APP	119.700 reserved for RGA supplementary TWR/APP
121.500	Emergency frequency	Emergency frequency	Guard band 121.425-121.575 MHz
121.600-121.975	Int/Nat.	Surface movement (AS)	-
122.000-123.050	Nat.	-	-
123.100	Aux. freq. SAR	-	Guard band 123.075-123.125 MHz
123.150-123.675	Nat.		
123.700-129.675	Int/Nat.	APP-ACC/L	
129.700-130.875	Nat.		
130.900-131.375	Int/Nat.	APP-ACC/L	
131.400-131.975	Int/Nat.	Operational control (OPC)	
132.000-135.975	Int/Nat.	ACC/U	

Note.— Column 3 above indicates the regionally agreed allotment distribution. With appropriate agreement, particular cases of assignment of frequencies not in full accordance with the above table may be made to meet requirements not capable of being satisfied in any other way.

3. DESIGNATED OPERATIONAL COVERAGE

3.1 The designated operational coverage in respect of international services is that agreed to be the standard for the Region. Values different from those indicated may be used in some cases, as appropriate.

3.2 The designated operational coverage for national services should, as far as possible, correspond to those agreed for international services, except that if different values are chosen for national services, due regard should be paid to the most efficient and economic use of the frequency band.

Group	Designated Operational Coverage	Service	Remarks
-	Undetermined	AS, OPC, NLA	Frequency assignments within specified sub-bands. Frequency and protection for NLA to be determined by States.
0		RGA, RGL, RLA, RPR	Assignments to be made on specified unprotected reserved frequencies or group of frequencies. (119.700 and 122.100 MHz for RGA 122.500 and 123.500 for RLA). 4 reserved frequencies in the NAT sub-bands for RGL.
1	25/40	TWR, PR, A/G, A/A, GLD	Confirmation by States needed in respect of A/A and A/G. Reduced designated operational coverage of TWR decided nationally or internationally.
2	25/100	APP/L, EQT, HEL	Confirmation by States needed in respect of EQT.
3	40/150	APP/I	
4	Service area/ 250	APP/H, ACC/L, DLT, RFT, F	FLT and RFT to be confirmed by States. For APP/H the designated operational range is 50 NM (92 km).
5	Service area/ 450	ACC/U, VOLMET	VOLMET service area extends to line of sight at maximum service height.
A	(60/200 for arrivals) (Limited protection in the band 121.600 — 121.975 MHz for departures)	ATIS	AMS VHF channels to be used only when VOR voice channel is unsuitable.
B	15/30	AFIS (INFO)	National light aviation information service to be specified.

4. GEOGRAPHICAL SEPARATION BETWEEN SERVICES

4.1 Co-channel geographical separation

4.1.1 The following table is based on the distance separation criteria specified at Annex 10, Volume I, Part II, 4.1.5.2 and with the values agreed by the LIM EUM RAN Meeting 1968 (Rec. 4/1). Service volumes other than those specified in the table should be based on the same criteria.

	Air-ground communications for	Symbol	Designated operational coverage		MINIMUM ACCEPTABLE GEOGRAPHICAL SEPARATIONS — KM (NM)						
			Range km (NM)	Height FL	GROUP B	GROUP 1	GROUP 2	GROUP 3	GROUP A	GROUP 4	GROUP 5
GROUP B	Aerodrome flight information service *	AFIS (Inf)	30 (16)	Up to 900 m (3 000 ft)Ø	200 (110)	220 (120)	335 (180)	380 (205)	435 (230)	465 (250)	585 (315)
GROUP 1	Aerodrome control including D/F service *	TWR	45 (25)	Up to 1 200 m (4 000 ft)Ø	220 (120)	240 (130)	350 (190)	400 (215)	445 (240)	480 (260)	600 (325)
	Precision approach radar *	PR	45 (25)								
GROUP 2	Approach control (low) including D/F service **	(APP)L	45 (25)	100	335 (180)	350 (190)	455 (245)	510 (275)	555 (300)	590 (320)	715 (385)
	Radar approach control (low) **	(APP)RL									
GROUP 3 (1)	Approach control (intermediate including D/F service) **	(APP)I	75 (40)	150	380 (205)	400 (215)	510 (275)	555 (300)	600 (325)	640 (345)	760 (410)
	Radar approach control (intermediate) **	(APP)RI									
GROUP A	ATIS (arrival) **	ATIS	110 (60)	200	425 (230)	445 (240)	555 (300)	600 (325)	640 (345)	685 (370)	805 (435)
GROUP 4	Approach control (high) including D/F service **	(APP)H	90 (50)	250	465 (250)						
	Radar approach control (high) **	(APP)RH									
	Area control service (lower airspace) **	(ACC)L	Within specified area	250	465 (250)	480 (260)	590 (320)	640 (345)	685 (370)	720 (390)	845 (455)
	Radar area control service (lower airspace) **	(ACC)RL									
	Flight information service (lower airspace) **	F	Within FIR	250	465 (250)						
GROUP 5	Area control service (Upper airspace) **	(ACC)U	Within specified area	450	585 (315)						
	Radar control service (upper airspace) **	(ACC)RU				600 (325)	715 (385)	760 (410)	805 (435)	845 (455)	960 (520)
	VOLMET (2) (* (**	VOLMET	Maximum available #	450	585 (315)						

Notes.— Ø Above the aerodrome.

* Distance measured from aerodrome or, for VOLMET, from transmitting site.

** Distance measured from edge of area served.

(1) If, exceptionally, a State has to assign a frequency to a TMA it should be treated, for geographical separation purposes, as a Group 3 assignment.

(#) A circular service area extending to line-of-sight distance at the maximum service height.

(2) Distance measured between transmitting sites for co-channel VOLMET assignments; distance measured from edge of VOLMET area (#) when VOLMET and ATC assignments share a frequency.

4.2 Adjacent channel geographical separation

4.2.1 The adjacent channel geographical separation between services should be based on Annex 10, Volume I, Part II, 4.1.5.3, as decided by regional agreement. Such regional agreement is contained in the reports of the EUR FCB.

ATTACHMENT B to PART X — COM

PLANNING CRITERIA

CRITERIA AND METHODS TO BE USED IN FREQUENCY ASSIGNMENT TO SATISFY COMMUNICATION REQUIREMENTS FOR OPERATIONAL CONTROL PURPOSES
(Paragraph 6.6 of the RCM on COM refers)

1. GENERAL

1.1 Dedicated frequencies for operational control purposes should be assigned to those aircraft operators who are required to maintain a system of Operational Control under the provisions of Annex 6, Part I.

2. AMS OPERATIONAL CONTROL COMMUNICATIONS ON VHF

2.1 For short distance operational control purposes the provisions of 1.1 above require the allotment of a certain number of VHF channels.

2.2 The frequency sub-band 131.400 to 131.975 MHz should, as far as possible, be utilized for this purpose.

2.3 Assignments of these VHF AMS channels should be made after the necessary co-ordination at both national and international levels and with the operators.

2.4 Strict economy in the number and use of frequencies assigned for this purpose should be observed. The Annex 10 provisions for frequency protection should not apply to OPC frequencies used in the EUR Region.

3. AMS OPERATIONAL CONTROL COMMUNICATIONS ON HF

3.1 Frequencies in the parts of the HF bands allotted for this purpose should only be used whenever VHF is unsuitable or inadequate. (See Annex 10, Volume I, Attachment C to Part II.)

(Further material on the co-ordination and assignment of these frequencies is under development and will be added as soon as it becomes available.)

ATTACHMENT C to PART X — COM

PLANNING CRITERIA

PRINCIPLES AND CRITERIA REGARDING FREQUENCY ASSIGNMENT PLANNING FOR VHF/UHF NAVIGATION AIDS IN THE EUR REGION
(Paragraph 7.3 of the RCM on COM refers)

1. FREQUENCY ASSIGNMENT PLANNING FOR ILS AND ASSOCIATED DME FACILITIES

1.1 Frequencies for ILS facilities should be selected from the list at Annex 10, Volume I, Part I, 3.1.5.1 in accordance with the regional agreement permitted under Annex 10, Volume I, Part II, 4.2.2.1. Where DME is provided, the appropriate DME channel selected from Table A at Annex 10, Volume I, Part I, 3.5.2.3.3 should be used.

1.2 The co-channel and adjacent channel geographical separations between ILS localizers and between ILS glide path installations should be as specified in Annex 10, Volume I, Attachment C to Part I, 2.6 in conjunction with List C of the Table of Distance Separations.

1.3 The geographical separations between ILS and VOR installations where they share the same channel or operate on an adjacent frequency should conform to the criteria stated at Annex 10, Volume I, Attachment C to Part I, 3.5.

1.4 The frequencies internationally agreed to meet requirements for ILS and ILS/DME are listed separately.

2. FREQUENCY ASSIGNMENT PLANNING FOR VOR AND DME FACILITIES

2.1 Frequencies for VOR facilities should be selected at 50 kHz points, in accordance with Annex 10, Volume I, Part I, 3.3.2.1 and Part, II 4.2.1, 4.2.3 and 4.2.3.1. The associated DME channels should be selected from Table A at 3.5.2.3.3 of Part I.

2.2 In the planning of frequency assignments to VOR facilities, the co-channel and adjacent channel separation distances developed by EUR FCB should be applied (cf. FCB/1976, Resolution No. 10).

2.3 In the case of separate DME facilities (i.e. DME without an associated VHF aid) the provisions of 3.5.4.3 of Annex 10, Volume I, Part I should be observed. For all DME installations the ground separation given at 3.4.9 of Attachment C to Part I of Annex 10, Volume I should be applied where the frequency of an adjacent facility is 63 MHz apart.

2.4 The frequencies internationally agreed to meet VOR/DME requirements are listed separately.

2.5 Where the designated operational range of a given frequency is not the same throughout 360°, the angular limits of sectorization in range should be indicated in accordance with the method described in Appendix 1 to this Attachment.

APPENDIX 1 to ATTACHMENT C

CONVENTION FOR INDICATING THE ANGULAR LIMITS OF SECTORIZATION IN RANGE

1. The range values given for ICAO category facilities are the ICAO recommended designated operational ranges and, for national facilities, the declared operational range requirement. In both cases the ranges are normally circular, i.e. of the same value throughout 360°.

2. Where, however, the designated or declared values of operational range are not the same in all sectors, the following conventions are used to indicate the angular limits of sectors:

a) The angular limits may be given in degrees true, e.g.

120 NM 200° T to 280° T.

[This method is relatively uncommon. Sectorization is normally expressed in terms of compass sectors, as indicated in b) to g) below.]

b) a main cardinal point, i.e. N, S, E ou W indicates a 90° Sector centred on that direction, e.g. 80N/60 means, a range in the North Sector, i.e. from NW to NE, of 80 NM, and of 60 NM throughout the rest of the 360°;

c) arising from b), 60E and W/100 means a range of 100 NM except in the East Sector from NE to SE and in the West Sector from SW to NW — where it is 60 NM;

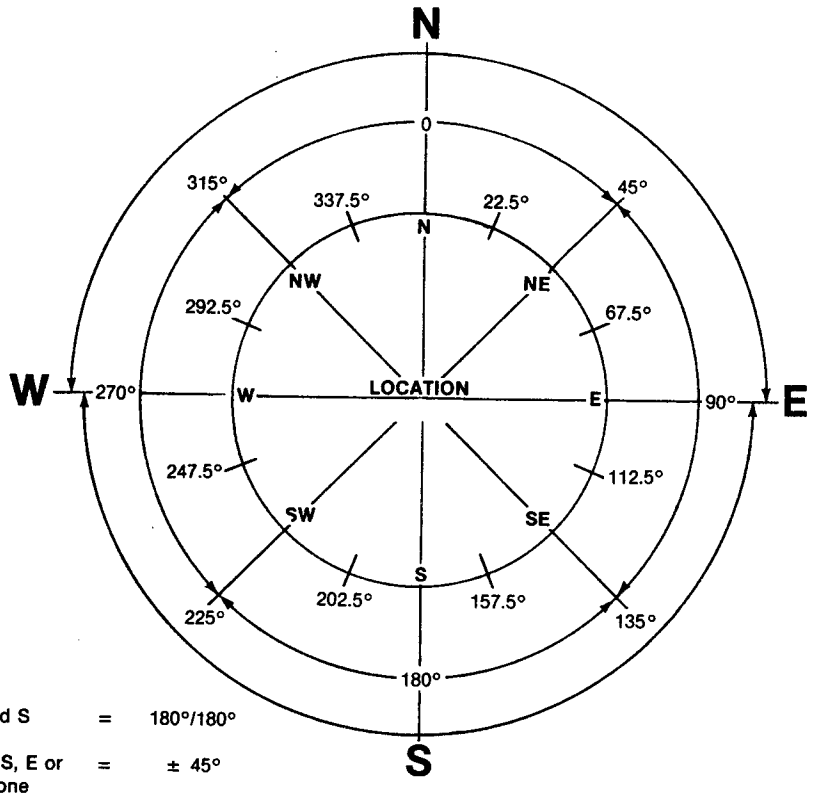
d) 100N/50S means a 180° split, 100 NM range being required in the Sector from W round through N to E; and 50 NM range in the sector from E round through S to W;

e) an intermediate cardinal point, i.e. NE, SE, SW or NW, indicates a 45° sector centred on that direction, e.g. 80NE/100 means a range of 80 NM between 22.5° and 67.5° and 100 NM elsewhere;

f) sectors defined as above may be overlapping, e.g. 60NE and E/120 means a range of 60 NM between 22.5° and 135° and 120 NM elsewhere;

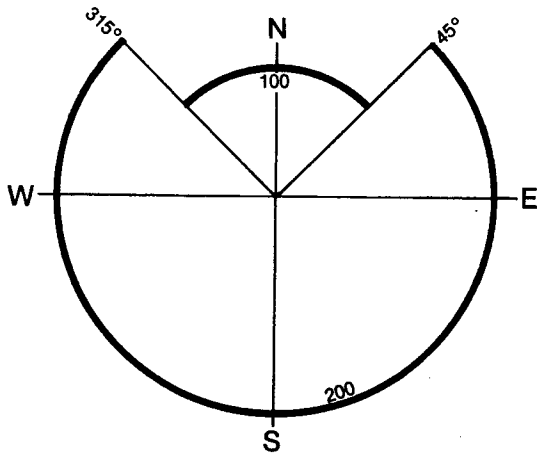
g) a sector may be defined by the outer limits of two specified sectors, e.g. 100 SE-SW/80 means a range of 100 NM between 112.5° and 247.5° and 80 NM elsewhere.

(See example in the diagram on page 10-C-3.)

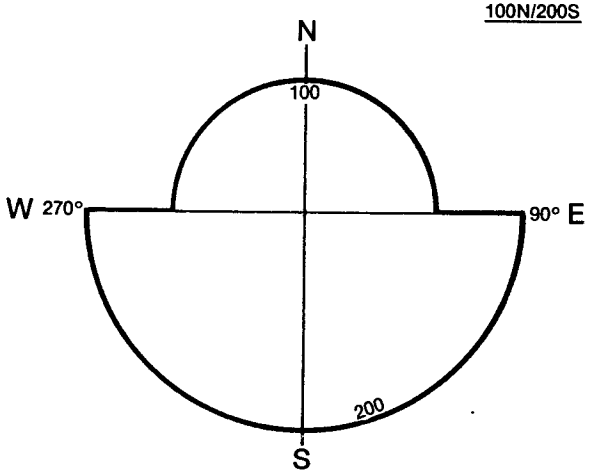


N and S	=	180°/180°
If N, S, E or W alone	=	± 45°
If, NE, SE, SW or NW alone	=	± 22.5°

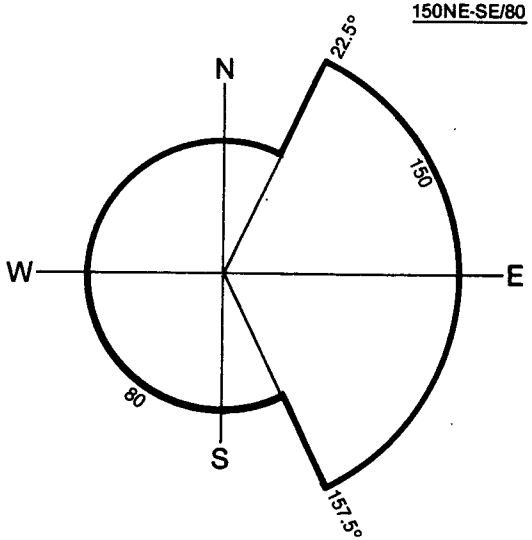
100N/200



100N/200S



150NE-SE/80



RANGE SECTORIZATION

ATTACHMENT D to PART X — COM

PLANNING CRITERIA

I. PRINCIPLES AND CRITERIA REGARDING FREQUENCY ASSIGNMENT PLANNING FOR LF/MF NAVIGATION AIDS IN THE EUR REGION

Paragraph 7.4 of the RCM on COM refers)

1. Wherever possible, frequencies at kHz points in the bands used for NDBs should be chosen to meet particular requirements. Frequency assignments at 0.5 kHz points may also be utilized, provided the full required protection can be ensured.

2. Frequency assignment planning should be based on a signal strength of 70 microvolts per metre at the limit of rated coverage (Attachment C to Part I of Annex 10, Volume I, 6.2.1.6). A daytime protection ratio of 15 dB between desired and undesired signals should be met throughout the designated operational coverage (cf. 2 of Attachment B to Annex 10, Volume I, Part II).

3. In the planning of frequency assignments, ADF receiver characteristics as specified at 3 of Attachment B to Part II of Annex 10, Volume I, should be assumed.

4. For the purpose of assessing the signal attenuation with distance, the latest LF/MF ground wave propagation curves agreed by the CCIR should be used, taking into account the frequency of operation and the effect of mixed land/sea path where appropriate. For these purposes, the following constants may be applied in all cases where an absolute order of accuracy is not required.

Over-land path

Soil characteristics: $\sigma = 10^{-2}$ S/m
$\varepsilon = 4$

Over-sea path

Sea-water characteristics: $\sigma = 5$ S/m
$\varepsilon = 80$

In individual cases, to confirm the attainment of the specified protection ratio, more accurate calculations based on precise soil characteristics, where these are known, may be made.

5. The frequencies internationally agreed to meet the requirements for Non-Directional Beacons and Locators are listed separately.

II. FREQUENCY PLANNING CRITERIA FOR THE BAND 415-435 kHz

1. POWER AND FIELD STRENGTH

1.1 The provisions of the ITU Radio Regulations in Part B, Chapter VIII, Article 35, Section IV B (Nos. 2853, 2854, 2855, 2856 and 2857) are used for the planning of frequency assignments.

Note.— The 15 dB protection ratio against interference is only required in daytime conditions.

2. PROPAGATION CHARACTERISTICS

2.1 The ground-wave propagation curves, recommended by the CCIR in Recommendation 368-3 (Geneva, 1982) are used to determine the attenuation of the field strength. The following propagation curves are selected:

a) *Land path*

Soil characteristics: $\sigma = 10^{-2}$ S/m
$\varepsilon = 4$

Frequency: 400 kHz

b) *Sea path*

Sea-water characteristics: $\sigma = 5$ S/m
$\varepsilon = 80$

Frequency: 400 kHz

3. RECEIVER CHARACTERISTICS

3.1 Distance separation required when assigning adjacent channels are derived from the following receiver characteristics (radio frequency selectivity):

Frequency difference (kHz)	Attenuation (dB)
0	0
1	6
3	35
5	65
6	80

4. ASSIGNABLE FREQUENCIES

4.1 The assignable frequencies shall, in general, be an integral multiple of 1 kHz.

5. MODULATION

NØN/A1A
NØN/A2A

ATTACHMENT E to PART X — COM

OPERATIONAL REQUIREMENT

METEOROLOGICAL OPERATIONAL TELECOMMUNICATIONS NETWORK-EUROPE (MOTNE)

1. INTRODUCTION

1.1 The MOTNE system is intended to satisfy the requirements for the exchange of operational meteorological information within the European area and the Mediterranean basin — an area larger than the EUR Region. States lying outside the EUR Region, but within the MOTNE area, are: Algeria, Egypt, Israel, Lebanon, Libyan Arab Jamahiriya, Morocco and Tunisia. These States are referred to as the "EUR peripheral States".

1.2 The current plan for meteorological circuits and centres is contained in Chart COM-1A.

1.3 The list of Meteorological Stations whose data are to be accommodated on the MOTNE is included in Table MET-2 of Part VIII — MET.

1.4 Runway state information for the aerodromes listed in 3 of Attachment A to Part III — AOP, should be disseminated over the MOTNE in a code-group appended to the routine meteorological message.

2. OPERATING REQUIREMENTS OF THE MOTNE

2.1 General

2.1.1 Because of the specialized nature of the messages and of their handling on the MOTNE, operating requirements concerning the format of bulletins, cancellation and priority have been developed for the system as follows:

2.2 Definitions

2.2.1 *Meteorological message*

2.2.1.1 A meteorological message is composed of a Meterological Text in any of the categories given in 2.4.

2.2.2 *MOTNE message*

2.2.2.1 A meteorological message, together with the procedural groups given in 2.5.5.

2.2.3 *MOTNE Bulletin*

2.2.3.1 One or more MOTNE messages of the same category, originating from the same MOTNE Area, together with the procedural groups given in 2.5.1 and 2.5.6.

2.2.4 *Selection*

2.2.4.1 A manual or automatic operation by which a proportion of the traffic received, and required for further dissemination, is detected and retransmitted to one or more outgoing channels.

2.3 General MOTNE procedures

2.3.1 Only MOTNE Bulletins shall flow on the MOTNE and these shall comply with the format prescribed in 2.5.

2.3.2 A MOTNE Bulletin shall not exceed 300 groups (1 800 characters) in length and preferably should not exceed 200 groups (1 200 characters) in length.

2.3.3 A MOTNE Bulletin shall not be interrupted for the insertion of a priority Bulletin (see 2.3.5).

2.3.4 If a method of message selection is employed the selected message or messages shall be contained within the original bulletin heading and ending.

2.3.5 SIGMET (WS), SPECI (SP), Amended TAF, Loop Breakdown (DD) and Correction messages (COR) shall be given priority status and shall be disseminated immediately following the transmission of the ending of the Bulletin during which they have been received or originated.

2.3.6 MOTNE messages should always be included in MOTNE Bulletins in the same order.

2.3.7 Where EUR TAF messages intended for circulation on MOTNE occupy more than one line of teletypewriter text the lines following the first should commence with five spaces.

[MOTNE 6, Rec. 1/17]

2.3.8 Circuit tests should be conducted in such a manner that:

a) any equipment tests carried out do not interfere with the loop (if this condition cannot be fulfilled, loop centres should be given advance notice of any circuit break);

b) test transmissions are carried out using the sequence defined in Annex 10, Volume II, 4.4.1.5.2.2 and include the identification of the transmitting centre;

Example: FROM LSSS LSSS LSSS
RYRYRYRYRYRYRYRYRY etc.

c) Transmissions, other than test transmissions, are not undertaken without prior notice unless they are required to establish a loop circuit.

[MOTNE 6, Rec. 1/12]

2.4 MOTNE categories of Meteorological Bulletins and their identifiers

Category	*Identifier*
Routine Report	SA
Selected Special Report	SP
TAF 9-hour	FC
TAF 18/24-hour	FT
SIGMET	WS
Route Forecast	FR
Area Forecast	FA
Loop Breakdown message	DD
Notices	NO

2.5 Format

2.5.1 *Bulletin Heading*

Starting line:

Starting pulse < < ≡ ↓ ZCZC →→→→→
(1) (2) (3) (4) (5)

Abbreviated heading:

< < ≡ ↓ FTIY ↑ 31 →↓ LIIB → ↑ 171500 (→ ↓AMD↑)
(6) (7) (8) (9) (10) (11)

N.B.: Numbers in parentheses refer to the Notes.

Legend:

< Carriage return (Signal 27)

≡ Line feed (Signal 28)

↓ Letter shift (Signal 29)

→ Space (Signal 31)

↑ Figure shift (Signal 30)

— Signal 22 in the figures case position. (Signal 22 is "V" on the letters case.) When bulletins are transmitted on manual morse circuits of the AFTN Signal "—···—" is used (BT).

Note 1.— Starting Pulse as defined in Annex 10, Volume II, Chapter 4, 4.4.12.1.2.1.

Note 2.— An uninterrupted sequence of two Signal 27 and one Signal 28 (< < ≡) to ensure starting at the beginning of the line.

Note 3.— Letter shift (Signal 29) to ensure that receiving machinery is in the letters case for correct presentation of the Start of Bulletin Signal.

Note 4.— Start of Bulletin Signal. An uninterrupted sequence in letters case of Signal 26, Signal 3, Signal 26, Signal 3 (ZCZC).

Note 5.— Five spaces (Signal 31) to assist manual handling of bulletins to be transferred from MOTNE to the AFTN.

Note 6. — See Note 2.

Note 7.— The first two letters constitute the category identifier; the second two letters indicate the State or MOTNE area of origin; the two figures constitute the number used to differentiate two or more Bulletins which contain data in the same code, which originate from the same State or MOTNE area, and have the same originating centre. They are chosen from the series "31, 32 ...". (See also WMO Manual on the GTS; Volume 1, Part II.)

Note 8.— Four-letter location indicator of the station originating or compiling the Bulletin.

Note 9.— One figure shift (Signal 30) to place receiving machines in the figures case.

Note 10.— A six-figure group where:

a) in the case of Routine Reports and Selected Special Reports, the six figures are the date/time group of the instant that the meteorological observations were made;

b) in the case of aerodrome, route and area forecasts, the group comprising the day of the month followed by the rounded UTC hour preceding the MOTNE loop scheduled transmission time for the bulletin concerned;

c) in the case of SIGMET messages, Loop Breakdown messages and Notices, the six figures are the date/time group of the instant of filing;

d) in the case of corrected, amended or delayed messages, the six figures should be the same as in the original bulletin.

Note 11.— Optional elements, including:

— one space (Signal 31);

— one letter shift (Signal 29);

— additional indicator (AMD or COR or RTD), used in conformity with 2.5.2, 2.5.3 or 2.5.4 below;

— one figure shift (Signal 30).

EXAMPLE I

Starting Pulse ≤ < ≡ ⌊ ZCZC → → → → → < < ≡ ⌊ SASW ⌈ 31 → ⌊ LSSS → ⌈ 050320 < < ≡ ⌊
LSZH → ⌈ 26006 → 9999 → 60 ⌊ RA → ⌈ 1 ⌊ SC ⌈ 024 → 7 ⌊ AS ⌈ 090 → 12/09 → 1026 → ⌊ NOSIG ⌈ = < < ≡ ⌊
LSGG → ⌈ 00000 → ⌊ CAVOK → ⌈ 08/08 → 1027 → ⌊ NOSIG ⌈ = < < ≡ ⌊ LFSB → ⌈ 26012 → 9999 →
60 ⌊ RA → ⌈ 2 ⌊ SC ⌈ 023 → 8 ⌊ SC ⌈ 050 → 13/11 → 1025 → ⌊ TEMPO → ⌈ 6000 → 62 ⌊ RA ⌈ = ⌊
< < ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ NNNN ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊

The bulletin would print as follows:

ZCZC
SASW31 LSSS 050320
LSZH 26006 9999 60RA 1SC024 7AS090 12/09 1026 NOSIG=
LSGG 00000 CAVOK 08/08 1027 NOSIG=
LFSB 26012 9999 60RA 2SC023 8SC050 13/11 1025 TEMPO 6000 62RA=
NNNN

EXAMPLE II

Starting Pulse < < ≡ ⌊ ZCZC → → → → → < < ≡ ⌊ FCSW ⌈ 31 → ⌊ LSSS → ⌈ 012000 < < ≡ ⌊
LSZH → ⌈ 2207 → 23005 → 9000 → 5 ⌊ SC ⌈ 040 → 6 ⌊ AC ⌈ 090 → ⌊ GRADU → ⌈ 2202 → 5000 → 61 ⌊
RA → ⌈ 7 ⌊ ST ⌈ 020 < < ≡ → → → → → 8 ⌊ AS ⌈ 080 = < < ≡ ⌊ LSGG → ⌈ 2207 →
⌊ VRB ⌈ 03 → 9999 → 2 ⌊ SC ⌈ 040 → ⌊ PROB ⌈ 20 → ⌊ INTER → ⌈ 0307 → 0800 → 41 ⌊ BCFG ⌈ = < < ≡ ⌊
LFSB → ⌈ 2106 → 26005 → 9000 → 60 ⌊ RA → ⌈ 3 ⌊ SC ⌈ 020 → 7 ⌊ AS ⌈ 090 → ⌊ RAPID →
⌈ 2324 → 28010/22 → 9999 < < ≡ → → → → → 4 ⌊ CU ⌈ 025 → 4 ⌊ AC ⌈ 110 → ⌊ INTER → ⌈ 0306 →
4000 → 80 ⌊ RASH → ⌈ 6 ⌊ CU ⌈ 020 = ⌊ < < ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ NNNN ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊ ⌊

The bulletin would print as follows:

ZCZC
FCSW31 LSSS 012000
LSZH 2207 23005 9000 5SC040 6AC090 GRADU 2202 5000 61RA 7ST020
8AS080=
LSGG 2207 VRB03 9999 2SC040 PROB20 INTER 0307 0800 41BCFG=
LFSB 2106 26005 9000 60RA 3SC020 7AS090 RAPID 2324 28010/22 9999
4CU025 4AC110 INTER 0306 4000 80RASH 6CU020=
NNNN

Explanation:

a) in each of the above examples the whole is a MOTNE Bulletin originating in Switzerland;

b) in the second line (abbreviated heading) of the first example, "SA" indicates that the Bulletin contains Routine Reports; "SW" signifies the State of Origin (Switzerland), the station compiling the bulletin being LSSS (Zürich). The figure group indicates that the Routine Reports refer to observations made at 0320 hours on the fifth day of the month;

c) in the second line of the second example, "FC" indicates that the Bulletin contains aerodrome forecasts valid for 9 hours — from 22 hours to 07 hours in the case of the two Swiss aerodromes and from 21 hours to 06 hours in the case of LFSB (Bâle-Mulhouse). "SW" signifies the State of Origin (Switzerland) and the station compiling the Bulletin is LSSS (Zürich). In the six-figure group the first two figures indicate that the forecast refers to the first day of the month. The last four figures indicate the rounded UTC hour (2000) preceding the fixed MOTNE loop scheduled transmission time (2044) for the FCSW31 Bulletin.

Teletypewriter machines using alphabets other than the International Alphabet No. 2 might print another symbol for "=".

Many teletypewriters print in small letters rather than in capital letters as shown in the examples.

The use, in the examples, of MET texts containing particular groups, expressions or symbols is not to be taken as defining the form of such texts.

2.5.2 *Amendment messages*

2.5.2.1 The heading of a bulletin containing amended information shall consist of the heading of the original Bulletin containing the information but with the inclusion of the additional indicator "AMD" on the same line.

2.5.3 *Delayed messages*

2.5.3.1 The heading of a Bulletin containing delayed information shall include the additional indicator "RTD" on the same line if a Bulletin has already been sent with NIL, as Bulletin or message contents with reference to that information.

2.5.4 *Corrected messages*

2.5.4.1 The heading of a Bulletin containing corrected information shall consist of the heading of the original Bulletin containing the information but with the inclusion of the additional indicator "COR" on the same line.

2.5.5 *MOTNE Message*

< < ≡ ↓ [Meteorological Text] ↑ =
(12) (13) (14)

N.B.: Numbers in parentheses refer to the Notes.

Note 12.— The alignment function at present prescribed for use on the AFTN [see Annex 10, Volume II, 4.4.4.1 ii) a)] commences the message so as to achieve correct machine alignment.

Note 13.— Letter shift (Signal 29), to place machines in the letters case for correct printing of the location indicator.

Note 14.— The end-of-message signal comprises one Signal 22 following a figure shift (Signal 30). If the end of the meteorological text is not in the figures case a figure shift is to be inserted before the Signal 22. Where the figure shift does not immediately precede the Signal 22 in this way there should be no intervening letter shift (Signal 29).

2.5.6 *Bulletin ending*

< < ≡ ≡ ≡ ≡ ≡ ≡ ≡ ≡ NNNN ↓↓↓↓↓↓↓↓↓↓
If required (15)

Note 15.— This is the same sequence as that prescribed in Annex 10, Volume II, 4.4.7 and 4.4.8 for the Ending part and tape feed sequence of AFTN messages.

2.6 Missing Bulletins and messages (MOTNE 9, Rec. 1/1)

2.6.1 When a centre responsible for compiling a Bulletin is unable to transmit the text of that Bulletin at the required time, it shall replace it by transmitting the indicator NIL in the line following the Bulletin heading.

2.6.2 When a report or forecast from a station included in the MOTNE programme is not available for transmission at the required time, arrangements shall be made for the insertion, in the MOTNE Bulletin which would include the report, of the location indicator of the station followed by the indicator "NIL".

2.7 Correction of errors

2.7.1 In messages intended for transmission on the MOTNE, errors noticed during preparation of the tape should be corrected by the following procedure:

a) errors in the Bulletin heading: recommence tape preparation;

b) errors in the location indicator, in the text or in the 4 N: backspace to the first character of the incorrect group and perforate by the Signal "LETTERS".

EEE shall not be used. When an error has been transmitted or occurs in transmission, a Correction message shall be sent.

2.8 Cancellation procedures

2.8.1 Where delays or circuit failures lead to accumulations of Bulletins at a transmission or retransmission centre, the following procedures should be applied:

a) SIGMET Bulletins should not be cancelled;

b) The most recent Bulletin of hourly or half-hourly observations or of a selected special report should immediately replace any preceding Bulletin of the same category, which would thus be automatically cancelled. Additionally, at the beginning of the next half-hourly sequence after a breakdown, all the half-hourly observations relating to the previous half-hour, and not yet disposed of, should be automatically cancelled; a similar procedure should also apply in the case of hourly observations;

c) The most recent bulletin of Aerodrome Forecasts or of an amended Aerodrome Forecast should replace immediately any preceding Bulletin of the same category, which should thus be automatically cancelled.

If, after the application of cancellation procedures, Bulletins of different categories await transmission or retransmission, the transmission of delayed traffic would be made in the following order:

— SIGMET messages

— Amended TAF (9-hour)

— Amended TAF (18-24 hour)

— Selected special reports

— EUR TAF (9-hour)

— TAF (18-24 hour)

— Route and Area Forecasts

— METAR

3. USE OF THE AFTN FOR MOTNE TRAFFIC

3.1 MOTNE traffic may be carried on the AFTN or on other non-MOTNE circuits:

a) when circuit failures occur in certain sections of the MOTNE system; and

b) in MOTNE areas where the collection of data is dependent upon existing AFTN circuits.

3.2 In order to facilitate the transfer of traffic from the AFTN to MOTNE, the following procedures shall apply, except where bilateral agreement has been reached between the State sending the traffic and the State inserting the data on MOTNE that a simplified procedure may be employed:

a) "MOTNE Messages" shall be assembled in "MOTNE Bulletin" form complete with the appropriate Bulletin Heading as described in 2.5.1 above and Bulletin Ending as described in 2.5.6 above but without the starting line;

b) the "MOTNE Bulletin" shall be preceded by a Heading, Address and Origin Parts of the AFTN message format in accordance with 4.4, Volume II of Annex 10 followed by:

FOR MOTNE → → → → →

c) at the centre making retransmission on the MOTNE system, the Bulletin shall be removed from the AFTN message by tearing through the space signals (→) following "FOR MOTNE" and adding the "Starting line" < < ≡ ↓ ZCZC → → → → → for MOTNE insertion.

3.3 Order of transmission and priority of MOTNE messages on the AFTN

3.3.1 If the volume of MOTNE messages to be sent on the AFTN is so great that communication centres or circuits of the AFTN might be overloaded, and consequently all the MOTNE traffic cannot be sent, the following order of transmission shall be followed as far as possible:

a) SIGMET messages;

b) METAR plus TREND type landing forecasts;

c) EUR 9-hour TAF;

d) other categories.

3.3.2 Supplementary procedures concerning the priority of MOTNE messages on the AFTN have been developed [cf. *Regional Supplementary Procedures* (Doc 7030), EUR Part 2 — Communications.]

4. USE OF THE AFTN FOR DISSEMINATION OF NON-EUR OPERATIONAL METEOROLOGICAL INFORMATION IN THE EUR REGION

4.1 As a general rule, non-EUR operational meteorological information should be disseminated in the EUR Region by use of the AFTN according to the conditions hereafter:

a) information required on a routine basis in the EUR Region should be disseminated via the AFTN by the AFTN/MOTNE Exchange Centres of Bruxelles, London and Paris by means of an appropriate automatic system for generating international addresses towards all EUR AFTN communication centres on the basis of not more than one AFTN communication centre per State and according to responsibilities to be predetermined by agreement between the three States concerned;

b) information not required on a routine basis in the EUR Region should be supplied by the AFTN/MOTNE Exchange Centres of Bruxelles and Wien by means of an automatic request/reply system accessible to all EUR AFTN stations.

Note.— As an exception to the above rule, short-term and long-term TAFs from some locations outside the EUR Region should continue to be accepted on the MOTNE loops. These locations are indicated in Tables MET-2A and 2B under the headings AL31, AW31, AW32, CY31, EG31, IS31, MC31, ME31, MP31 and TS31.

4.2 The list of non-EUR Meteorological Stations, whose information is to be accommodated in the Wien and Bruxelles data banks and/or disseminated on a routine basis in the EUR Region, is included in Supplement 2-MET to Part VIII — MET.

4.3 Action in the case of missing or garbled information (MOTNE 8, Rec. 2/3)

4.3.1 In the first instance, where a repeat of missing information (or information received garbled) is required, the EUR State should, if the information was in the Bruxelles/Wien data bank catalogue, send a request message to the appropriate facility.

4.3.2 If, for any reason, the foregoing action is ineffective, a request should be addressed to the originating State or AFTN origin station (KWBCYM for the United States) to repeat the whole original message to all addressees to which it had been sent.

5. USE OF THE AFTN FOR DISSEMINATION OF EUR OPERATIONAL METEOROLOGICAL INFORMATION IN THE NAM AND NAT REGIONS

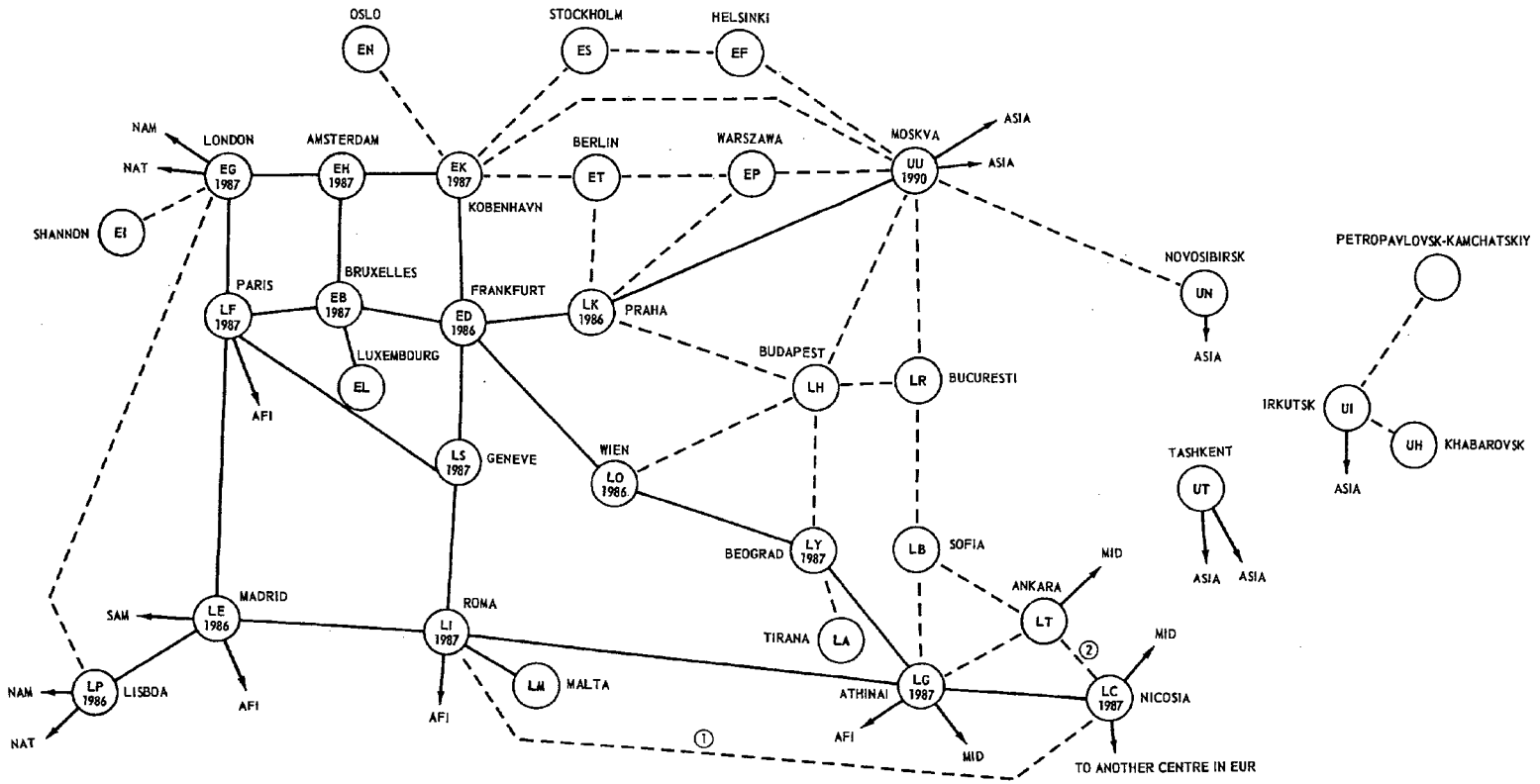
5.1 As a general rule, EUR operational meteorological information should be transmitted to the NAM and NAT Regions by use of the AFTN according to the conditions hereafter:

a) information required on a routine basis and circulating over the MOTNE should be extracted by the London AFTN/MOTNE Exchange Centre for the NAM and/or NAT States requiring it;

b) information required on a routine basis and not circulating over the MOTNE should be addressed by the EUR origin stations to the NAM and/or NAT States requiring it and to the Bruxelles data bank for storage;

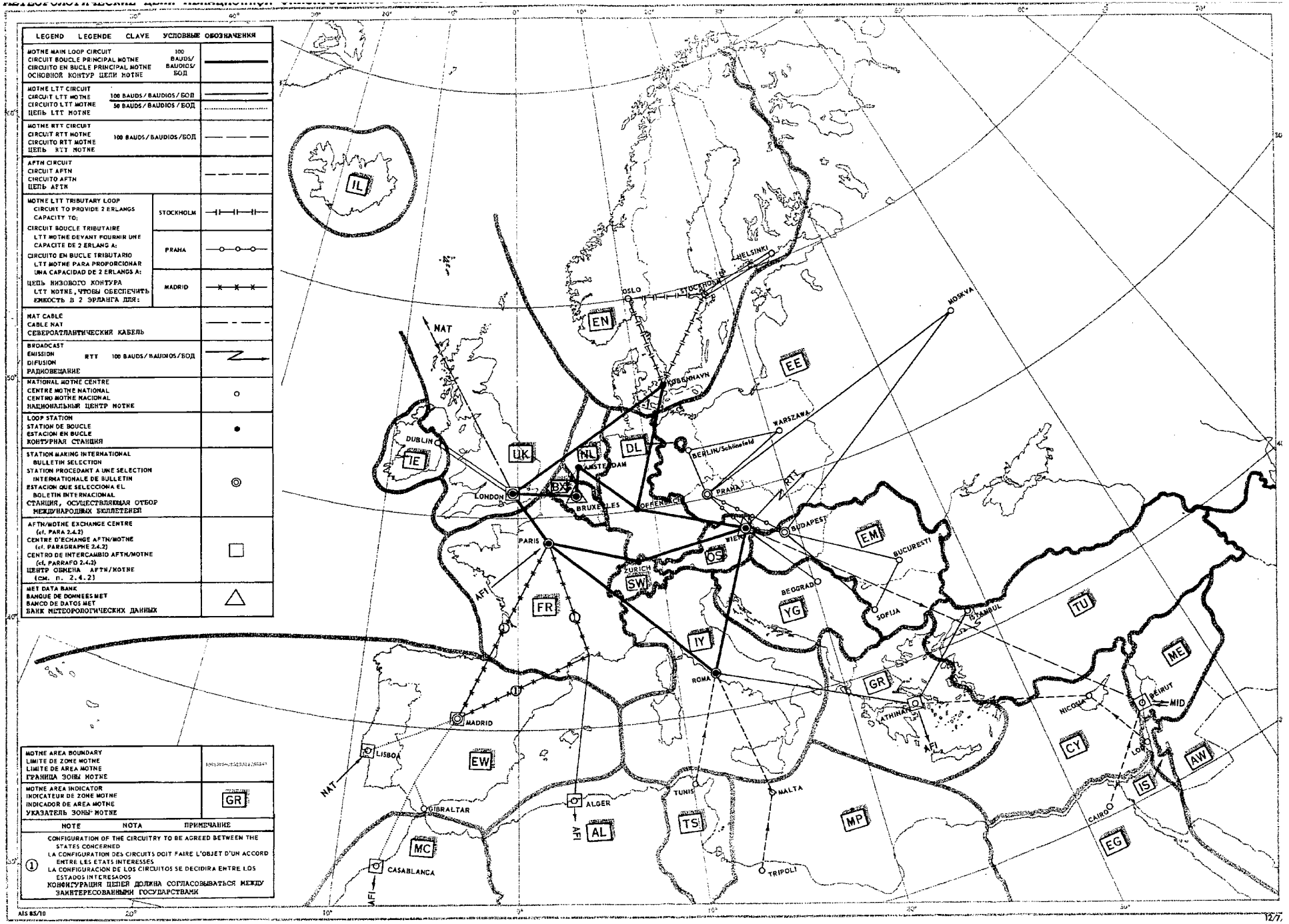
c) information not required on a routine basis should be obtained from the Bruxelles AFTN/MOTNE Exchange Centre, by means of an automatic request/reply system accessible to one AFTN communication centre to be designated in the NAM and NAT Regions.

Note.— Details of the request/reply procedures, and of the operational meteorological information available in the Wien and Bruxelles data banks, are shown in a catalogue published by the European Office of ICAO.



LEGEND LEGENDE CLAVE УСЛОВНЫЕ ОБОЗНАЧЕНИЯ	
MEDIUM SPEED LINK - CIDIN PROTOCOLS (IMPLEMENTATION 1988-90, FOLLOWING CIDIN TRIALS) LIAISON MOYENNE VITESSE - PROTOCOLES CIDIN (REALISATION 1988-90, APRES ESSAIS CIDIN) ENLACE A MEDIANA VELOCIDAD-PROTOCOLOS CIDIN (IMPLANTACION 1988-90, DESPUES DE ENSAYOS CIDIN) СРЕДНЕСКОРОСТНАЯ ЦЕПЬ — ПРОТОКОЛ CIDIN, (ВВОД В ДЕЙСТВИЕ 1988-90 Г.Г., ПОСЛЕ ИСПЫТАНИЯ CIDIN)	——
CONVENTIONAL AFTN LINK LIAISON RSFTA CLASSIQUE ENLACE CIDIN CONVENCIONAL ОБЫЧНАЯ ЦЕПЬ AFTN	- - -
SUBJECT TO BILATERAL AGREEMENT BETWEEN THE STATES CONCERNED SUJET A ACCORD BILATERAL ENTRE LES ETATS CONCERNES A RESERVA DE ACUERDO BILATERAL ENTRE LOS ESTADOS INTERESADOS ПРИ УСЛОВИИ ЗАКЛЮЧЕНИЯ ДВУСТОРОННЕГО СОГЛАШЕНИЯ МЕЖДУ ЗАИНТЕРЕСОВАННЫМИ ГОСУДАРСТВАМИ	①
CIRCUIT NOT IMPLEMENTED AT PRESENT. RE-IMPLEMENTATION SUBJECT TO AGREEMENT CIRCUIT NON MIS EN SERVICE ACTUELLEMENT. REMISE EN SERVICE SUJET A ACCORD CIRCUITO NO IMPLANTADO EN LA ACTUALIDAD. REIMPLANTACION A RESERVA DE ACUERDO В НАСТОЯЩЕЕ ВРЕМЯ ЦЕПЬ НЕ ФУНКЦИОНИИУЕТ. ВВОД В ДЕИСТВИЕ ЗАВИСИТ ОТ ЗАКЛЮЧЕНИЯ СОГЛАШЕНИЯ	②

NOTES NOTAS ПРИМЕЧАНИЯ
1. FIGURES INSIDE CIRCLES REPRESENT THE DATES WHEN CENTRES CAPABLE OF SUPPORTING CIDIN PROCEDURES WILL BE AVAILABLE 1. LES CHIFFRES INSCRITS DANS LES CERCLES CORRESPONDENT AUX DATES DE REALISATION DE CENTRES ACCEPTANT LES PROCEDURES CIDIN 1. LAS CIFRAS INSCRITAS EN CIRCULOS CORRESPONDEN A LAS FECHAS DE IMPLANTACION DE LOS CENTROS QUE ACEPTEN LOS PROTOCOLOS CIDIN 1. ЦИФРЫ ВНУТРИ КРУЖКОВ ОБОЗНАЧАЮТ ДАТЫ ПЛАНИРУЕМОГО ВВОДА В ДЕЙСТВИЕ ПРОЦЕДУР CIDIN
2. THE ARROWS SHOWING INTER-REGIONAL CONNECTIONS DO NOT IMPLY MODULATION RATE OR PROTOCOL 2. LES FLECHES DE RACCORDEMENT INTERREGIONAL NE COMPORTENT AUCUNE INDICATION DE RAPIDITE DE MODULATION NI DE PROTOCOLE 2. LAS FLECHAS QUE INDICAN LAS CONEXIONES ENTRE REGIONES NO IMPLICAN REGIMENES DE MODULACION O PROTOCOLOS 2. СТРЕЛКИ, ПОКАЗЫВАЮЩИЕ ВНУТРИРЕГИОНАЛЬНЫЕ СВЯЗИ, К ЧАСТОТЕ МОДУЛЯЦИИ И ПРОТОКОЛУ ОТНОШЕНИЯ НЕ ИМЕЮТ


LEGEND LEGENDE CLAVE УСЛОВНЫЕ ОБОЗНАЧЕНИЯ
MOTNE MAIN LOOP CIRCUIT
CIRCUIT BOUCLE PRINCIPAL MOTNE
CIRCUITO EN BUCLE PRINCIPAL MOTNE
ОСНОВНОЙ КОНТУР ЦЕПИ MOTNE
100 BAUDS/BAUDIOS/БОД
MOTNE LTT CIRCUIT
CIRCUIT LTT MOTNE
CIRCUITO LTT MOTNE
ЦЕПЬ LTT MOTNE
100 BAUDS/BAUDIOS/БОД
50 BAUDS/BAUDIOS/БОД
MOTNE RTT CIRCUIT
CIRCUIT RTT MOTNE
CIRCUITO RTT MOTNE
ЦЕПЬ RTT MOTNE
100 BAUDS/BAUDIOS/БОД
AFTN CIRCUIT
CIRCUIT AFTN
CIRCUITO AFTN
ЦЕПЬ AFTN
MOTNE LTT TRIBUTARY LOOP CIRCUIT TO PROVIDE 2 ERLANGS CAPACITY TO:
CIRCUIT BOUCLE TRIBUTAIRE LTT MOTNE DEVANT FOURNIR UNE CAPACITE DE 2 ERLANG A:
CIRCUITO EN BUCLE TRIBUTARIO LTT MOTNE PARA PROPORCIONAR UNA CAPACIDAD DE 2 ERLANGS A:
ЦЕПЬ НИЗОВОГО КОНТУРА LTT MOTNE, ЧТОБЫ ОБЕСПЕЧИТЬ ЕМКОСТЬ В 2 ЭРЛАНГА ДЛЯ:
STOCKHOLM
PRAHA
MADRID
NAT CABLE
CABLE NAT
СЕВЕРОАТЛАНТИЧЕСКИЙ КАБЕЛЬ
BROADCAST
EMISSION
DIFUSION
РАДИОВЕЩАНИЕ
RTT 100 BAUDS/BAUDIOS/БОД
NATIONAL MOTNE CENTRE
CENTRE MOTNE NATIONAL
CENTRO MOTNE NACIONAL
НАЦИОНАЛЬНЫЙ ЦЕНТР MOTNE
LOOP STATION
STATION DE BOUCLE
ESTACION EN BUCLE
КОНТУРНАЯ СТАНЦИЯ
STATION MAKING INTERNATIONAL BULLETIN SELECTION
STATION PROCEDANT A UNE SELECTION INTERNATIONALE DE BULLETIN
ESTACION QUE SELECCIONA EL BOLETIN INTERNACIONAL
СТАНЦИЯ, ОСУЩЕСТВЛЯЮЩАЯ ОТБОР МЕЖДУНАРОДНЫХ БЮЛЛЕТЕНЕЙ
AFTN/MOTNE EXCHANGE CENTRE (cf. PARA 2.4.2)
CENTRE D'ECHANGE AFTN/MOTNE (cf. PARAGRAPHE 2.4.2)
CENTRO DE INTERCAMBIO AFTN/MOTNE (cf. PARRAFO 2.4.2)
ЦЕНТР ОБМЕНА AFTN/MOTNE (см. п. 2.4.2)
MET DATA BANK
BANQUE DE DONNEES MET
BANCO DE DATOS MET
БАНК МЕТЕОРОЛОГИЧЕСКИХ ДАННЫХ
MOTNE AREA BOUNDARY
LIMITE DE ZONE MOTNE
LIMITE DE AREA MOTNE
ГРАНИЦА ЗОНЫ MOTNE
MOTNE AREA INDICATOR
INDICATEUR DE ZONE MOTNE
INDICADOR DE AREA MOTNE
УКАЗАТЕЛЬ ЗОНЫ MOTNE
GR
NOTE NOTA ПРИМЕЧАНИЕ
1 CONFIGURATION OF THE CIRCUITRY TO BE AGREED BETWEEN THE STATES CONCERNED
LA CONFIGURATION DES CIRCUITS DOIT FAIRE L'OBJET D'UN ACCORD ENTRE LES ETATS INTERESSES
LA CONFIGURACION DE LOS CIRCUITOS SE DECIDIRA ENTRE LOS ESTADOS INTERESADOS
КОНФИГУРАЦИЯ ЦЕПЕЙ ДОЛЖНА СОГЛАСОВЫВАТЬСЯ МЕЖДУ ЗАИНТЕРЕСОВАННЫМИ ГОСУДАРСТВАМИ
IL
EN
EE
EM
OS
SW
FR
IY
YG
TU
ME
GR
CY
AW
IS
EG
MP
TS
AL
EW
MC
UK
IE
NL
DL
BX
NAT
AFI
RTT
HELSINKI
STOCKHOLM
OSLO
KOBENHAVN
MOSKVA
WARSZAWA
BERLIN/Schoenefeld
PRAHA
DUBLIN
LONDON
AMSTERDAM
BRUXELLES
OFFENBACH
PARIS
ZURICH
WIEN
BUDAPEST
BUCURESTI
BEOGRAD
SOFIJA
ISTANBUL
ROMA
ATHINAI
NICOSIA
BEIRUT
MID
LOD
CAIRO
MADRID
LISBOA
GIBRALTAR
ALGER
TUNIS
MALTA
TRIPOLI
CASABLANCA
AIS 85/10
12/7

AIR NAVIGATION PLAN

EUROPEAN REGION

PART X

AERONAUTICAL TELECOMMUNICATIONS (COM)

SUPPLEMENT 1-COM

TABLE COM-1
ITU ALLOTMENT AREAS AND ICAO HF DESIGNATORS

FIRST EDITION

12/7/85

TABLE COM-1

ITU ALLOTMENT AREAS AND ICAO HF DESIGNATORS

Explanation of the table

Column

1 Frequency in kHz

2 ITU allotment areas from ITU Radio Regulations Appendix 27 Aer2 used by EUR States:

Two and three letter entries indicate Major World Air Route Areas (MWARAs):

EA = East Asia
EUR = Europe
MID = Middle East
NCA = North Central Asia
NP = North Pacific

Four letter entries indicate VOLMET areas:

V NCA = VOLMET area — North Central Asia

3 to 13 The ICAO designator for HF MWARA and VOLMET networks used at present by EUR States to meet ICAO requirements as shown in Table ATS-1. These designations are derived from the ITU allotment area abbreviations as contained in Appendix 27 Aer2 to the ITU Radio Regulations.

14 Remarks

ITU ALLOTMENT AREAS AND ICAO HF DESIGNATORS

FREQUENCY (kHz)	ITU ALLOTMENT AREA	EA-1	EA-2	EUR	MID-1	MID-2	MID-3	NCA-1	NCA-2	NCA-3	NP	VNCA	REMARKS
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2 932	NP										X		
2 944	MID						X						
2 992	MID				X								
3 004	NCA									X			
3 016	EA	X											
3 019	NCA							X					
3 461	V NCA											X	
3 467	MID, AFI					X							
3 473	MID												
3 479	EUR			X									
3 485	EA, SEA		X										
3 491	EA												
4 663	V NCA											X	
4 669	MID						X						
4 678	NCA								X				
5 628	NP										X		
5 646	NCA							X					
5 655	EA, SEA		X										
5 658	MID, AFI					X							
5 661	EUR			X									
5 664	NCA									X			
5 667	MID				X								
5 670	EA												
5 676	V NCA											X	
6 571	EA	X											
6 592	NCA								X				
6 598	EUR			X									
6 625	MID												
6 631	MID						X						
8 897	EA	X											

1	2	3	4	5	6	7	8	9	10	11	12	13	14
8 918	MID				X								
8 951	MID						X						
10 018	MID					X							
10 039	NCA									X			
10 042	EA	X											
10 048	NP										X		
10 084	EUR			X									
10 090	V NCA											X	
10 096	NCA								X				
11 375	MID						X						
11 396	EA, SEA		X										
13 279	V NCA											X	
13 288	MID, AFI, EUR			X		X							
13 297	EA	X											
13 300	NP										X		
13 303	NCA									X			
13 306	NCA, INO												
13 309	EA, SEA		X										
13 312	MID				X								
13 315	NCA							X					
17 904	NP										X		
17 907	EA, SEA	X											
17 958	NCA							X	X	X			
17 961	AFI, EUR, INO, MID			X			X						

AIR NAVIGATION

EUROPEAN REGION

PART X — COM

As the remaining Supplements to Part X (2-COM, 3-COM, 4-COM and 5-COM) cannot be included in this shipment they will be issued with the fourth shipment (August 1985).

PART X — COM

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